



**PLANT STANDARD**  
COMPONENT FABRICATION PLANT  
RUDRAPUR

RU 711 11 99

Rev. No. 00

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**BOLTS, HEXAGON HEAD, PRODUCT GRADE 'A', COARSE PITCH,  
STAINLESS STEEL (Gr A2-70)**

**1.0 DESIGNATION:**

A product Gr. A hexagon head, stainless steel (gr A2-70) bolt of nominal diameter 10mm, length 60 mm and coarse pitch shall be designated as:

**1.1 On drawings:**

- i) Material specification column : RU 711 11 99
- ii) Description column: BOLT HEX A M10 X 60 - SS

**1.2 On indents:**

Bolt Hex A M10 X 60 - SS: RU 711 11 99.

**2.0 COMPLIANCE WITH STANDARDS:**

**2.1 Dimensions, Tolerances & General Requirements:**

As per IS:1364, Part 1-2002.

**2.2 Mechanical properties:**

To conform material properties as specified in Table-4 of IS:1367, Part 14-2002.

**2.3 Threads:**

Pitch-coarse to IS:4218, Part 2.  
Tolerance quality - Medium.  
Tolerance class - 6g.

**2.4 Identification Marking:**

As stated in clause 3 of IS:1367, Part 14.

**2.5 Surface Discontinuity:**

As per IS:1367, Part.9.

**2.6 Finish: Clean and bright.**

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**3.0 NOTES:**

- 3.1 For length and diameter combination refer Table-1 of IS:1364 Part-1.
- 3.2 For screw threads, general (Metric) refer to BHEL standard AA 023 18 00.
- 3.3 For tolerance grade, position and class refer to BHEL standard AA 023 02 01.
- 3.4 When fasteners are to be tested with in BHEL, the sampling and acceptance plan shall be as per IS:1367, part 17.

**4.0 REFERRED STANDARDS (Latest publications including amendment):**

- 1) AA 023 18 00
- 2) AA 023 02 01
- 3) IS: 1364 Pt 1
- 4) IS: 1367 Pt 9 & 14
- 5) IS: 4218 Pt 2



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**SCREWS, HEXAGON HEAD, PRODUCT GRADE 'A', COARSE PITCH,  
STAINLESS STEEL (Gr A2-70)**

**1.0 DESIGNATION:**

A product Gr. A hexagon head, stainless steel (gr A2-70) screw of nominal diameter 10mm, length 60 mm and coarse pitch shall be designated as:

**1.1 On drawings:**

- i) Material specification column : RU 712 11 99
- ii) Description column: SCRU HEX A M10 X 60 - SS

**1.2 On indents:**

Screws Hex A M10 X 60 - SS: RU 712 11 99.

**2.0 COMPLIANCE WITH STANDARDS:**

**2.1 Dimensions, Tolerances & General Requirements:**

As per IS:1364, Part 2-2002.

**2.2 Mechanical properties:**

To conform material properties as specified in Table-4 of IS:1367 Part 14-2002.

**2.3 Threads:**

Pitch-coarse to IS:4218, Part 2.  
Tolerance quality - Medium.  
Tolerance class - 6g.

**2.4 Identification Marking:**

As stated in clause 3 of IS:1367, Part 14.

**2.5 Surface Discontinuity:**

As per IS:1367, Part.9.

**2.6 Finish: Clean and bright.**

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**3.0 NOTES:**

- 3.1 For length and diameter combination refer Table-1 of IS:1364 Part-2.
- 3.2 For screw threads, general (Metric) refer to BHEL standard AA 023 18 00.
- 3.3 For tolerance grade, position and class refer to BHEL standard AA 023 02 01.
- 3.4 When fasteners are to be tested with in BHEL, the sampling and acceptance plan shall be as per IS:1367, part 17.

**4.0 REFERRED STANDARDS (Latest publications including amendment):**

- 1) AA 023 18 00
- 2) AA 023 02 01
- 3) IS: 1364 Pt 2
- 4) IS: 1367 Pt 9 & 14
- 5) IS: 4218 Pt 2



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**NUTS, HEXAGON, PRODUCT GRADE 'A', COARSE PITCH,  
STAINLESS STEEL (Gr A2-70)**

- 1.0 DESIGNATION:**  
A product Gr. A hexagon, stainless steel (gr A2-70) nut thread M10 and coarse pitch shall be designated as:
- 1.1 On drawings:**  
i) Material specification column : RU 715 11 99  
ii) Description column: NUT HEX A M10 - SS
- 1.2 On indents:**  
Nut Hex A M10 - SS: RU 715 11 99.
- 2.0 COMPLIANCE WITH STANDARDS:**
- 2.1 Dimensions, Tolerances & General Requirements:**  
As per IS:1364, Part 3-2002.
- 2.2 Mechanical properties:**  
To conform material properties as specified in Table-4 of IS:1367, Part 14-2002.
- 2.3 Threads:**  
Pitch-coarse to IS:4218, Part 2.  
Tolerance quality - Medium.  
Tolerance class - 6g.
- 2.4 Identification Marking:**  
As stated in clause 3 of IS:1367, Part 14.
- 2.5 Surface Discontinuity:**  
As per IS:1367, Part.9.
- 2.6 Finish:** Clean and bright.

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**3.0 NOTES :**

- 3.1** For length and diameter combination refer Table-1 of IS:1364 Part-3.
- 3.2** For screw threads, general (Metric) refer to BHEL standard AA 023 18 00.
- 3.3** For tolerance grade, position and class refer to BHEL standard AA 023 02 01.
- 3.4** When fasteners are to be tested with in BHEL, the sampling and acceptance plan shall be as per IS:1367, part 17.

**4.0 REFERRED STANDARDS (Latest publications including amendment):**

- 1) AA 023 18 00
- 2) AA 023 02 01
- 3) IS: 1364 Pt 3
- 4) IS: 1367 Pt 9 & 14
- 5) IS: 4218 Pt 2



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**WASHERS, PUNCHED, TYPE-A, STAINLESS STEEL**

**1.0 DESIGNATION:**

A punched washer type-A of size 6.6mm and made of stainless steel shall be designated as:

**1.1 On drawings:**

- i) Material specification column: RU 716 10 99.
- ii) Description column : WASHER PNCHD A 6.6 -SS

**1.2 On indents:**

Washer Punched A 6.6 - Stainless Steel: RU 716 10 99.

**2.0 COMPLIANCE WITH STANDARDS:**

**2.1 Dimensions, Tolerances and General requirements:**

As per Table-1 of this standard.

**2.2 Material:**

Austenitic stainless steel gr. 304 (X04Cr19Ni9), as stated in IS: 1570, part 5-1985.

**2.3 Finish:** Clean and bright.

**2.4 Magnetic Properties:** All austenitic stainless steel fasteners are normally non-magnetic. After cold working, some magnetic properties may be evident.

**1.0 NOTES:**

- 1.1 Surfaces should be perfectly flat and free from defects.
- 1.2 For general requirements of washers, refer BHEL standard AA 023 04 08.
- 1.3 Weights given in this standard are for general reference only and are not meant for commercial transactions.
- 1.4 When fasteners are to be tested with in BHEL, the sampling and acceptance plan shall be as per IS:1367, part 17.

**2.0 REFERRED STANDARDS (Latest publications including amendment):**

IS:1570, part 5, IS:1367 part 17, IS:2016, AA 023 04 08

|  |                          |   |                |                 |
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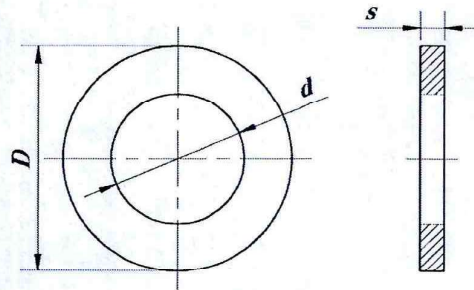


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**TABLE-1**

**DIMENSIONS FOR WASHER, PUNCHED, TYPE A, STAINLESS STEEL**

| Size<br>'d'<br>Nom | Out Side Dia<br>'D' Nom |            | Thickness 's'<br>Nom |      | Suitable for<br>Bolt /Screw<br>Size | Sub-<br>Code | Weight<br>Kg /1000<br>Nos. |
|--------------------|-------------------------|------------|----------------------|------|-------------------------------------|--------------|----------------------------|
|                    | Basic                   | Tol        | Basic                | Tol  |                                     |              |                            |
| 1.8                | 4.0                     | +0<br>-0.3 | 0.40                 | ±0.1 | M 1.6                               | 013          | 0.128                      |
| 2.4                | 5.0                     | +0<br>-0.3 | 0.40                 | ±0.1 | M 2                                 | 021          | 0.193                      |
| 2.9                | 6.5                     | +0<br>-0.3 | 0.40                 | ±0.1 | M 2.5                               | 030          | 0.340                      |
| 3.4                | 7.0                     | +0<br>-0.3 | 0.50                 | ±0.1 | M 3                                 | 048          | 0.470                      |
| 4.5                | 9.0                     | +0<br>-0.3 | 0.80                 | ±0.1 | M 4                                 | 056          | 1.221                      |
| 5.5                | 10.0                    | +0<br>-0.3 | 1.00                 | ±0.1 | M 5                                 | 064          | 1.753                      |
| 6.6                | 12.5                    | +0<br>-0.4 | 1.60                 | ±0.2 | M 6                                 | 072          | 4.531                      |
| 9.0                | 17.0                    | +0<br>-0.4 | 1.60                 | ±0.2 | M 8                                 | 080          | 8.363                      |
| 11.0               | 21.0                    | +0<br>-0.5 | 2.00                 | ±0.2 | M 10                                | 099          | 16.083                     |
| 14.0               | 24.0                    | +0<br>-0.5 | 2.50                 | ±0.3 | M 12                                | 102          | 23.873                     |
| 18.0               | 30.0                    | +0<br>-0.5 | 3.15                 | ±0.3 | M 16                                | 110          | 45.595                     |
| 22.0               | 37.0                    | +0<br>-0.8 | 3.15                 | ±0.3 | M 20                                | 129          | 70.055                     |
| 26.0               | 44.0                    | +0<br>-0.8 | 4.00                 | ±0.3 | M 24                                | 137          | 126.653                    |
| 30.0               | 50.0                    | +0<br>-0.8 | 4.00                 | ±0.3 | M 27                                | 145          | 160.829                    |
| 33.0               | 56.0                    | +0<br>-1.0 | 4.00                 | ±0.3 | M 30                                | 153          | 205.761                    |
| 36.0               | 60.0                    | +0<br>-1.0 | 5.00                 | ±0.6 | M 33                                | 161          | 289.493                    |
| 39.0               | 66.0                    | +0<br>-1.0 | 5.00                 | ±1.0 | M 36                                | 170          | 356.212                    |
| 42.0               | 72.0                    | +0<br>-1.0 | 6.00                 | ±1.0 | M 39                                | 188          | 515.659                    |
| 45.0               | 78.0                    | +0<br>-1.0 | 6.00                 | ±1.0 | M 42                                | 196          | 612.006                    |
| 52.0               | 92.0                    | +0<br>-1.5 | 8.00                 | ±1.0 | M 48                                | 200          | 1157.972                   |



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**WASHERS, SPRING LOCK, SINGLE COIL, RECTANGULAR SECTION  
 TYPE-A (WITH BENT ENDS), STAINLESS STEEL**

**1.0 DESIGNATION:**

A single coil, rectangular section, spring lock washer, type-A (with bent ends) for right hand threads, of nominal size 5 mm and made of stainless steel shall be designated as:

**1.1 On drawings:**

- i) Material specification column: RU 716 40 99.
- ii) Description column : WASHER SPRING LOCK SC A 5 -SS

**1.2 On indents:**

Washer Spring Lock Single Coil A 5 : RU 716 40 99.

**2.0 COMPLIANCE WITH STANDARDS:**

**2.1 Dimensions, Tolerances and General requirements:**

Dimensions per Table-1 of this standard and general requirement as per IS:3063.

**2.2 Material:**

Austenitic stainless steel gr. 304 (X04Cr19Ni9), as stated in IS: 1570, part 5-1985.

**2.3 Finish:** Clean and bright.

**2.4 Magnetic Properties:** All austenitic stainless steel fasteners are normally non-magnetic. After cold working, some magnetic properties may be evident.

**3.0 NOTES:**

- 3.1 For washer spring lock (Type-B) refer plant standard RU 716 40 98.
- 3.2 Weights given in this standard are for general reference only and are not meant for commercial transactions.
- 3.3 When fasteners are to be tested with in BHEL, the following sampling plan shall be followed for physical properties.

| Lot Size    | Sample Size | Acceptance No. |
|-------------|-------------|----------------|
| Upto 1000   | 5           | 0              |
| 1001-3000   | 8           | 0              |
| 3001-10000  | 13          | 0              |
| 10000-35000 | 20          | 0              |
| Over 35000  | 32          | 1              |

|  |                          |   |                |                 |
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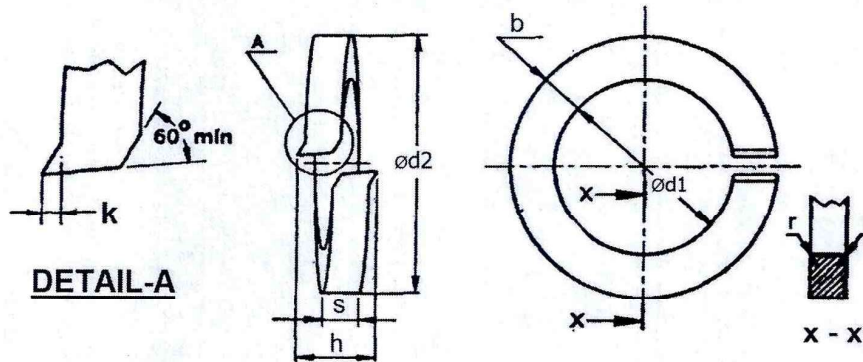


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**TABLE-1**

| Nom. Size | Internal Dia. |      | Out-side Dia. d2 | Width |      | Thickness |      | Radius r | Bend End k* | For Bolt Nut or Screw Size | Sub-code | Wt Kg Per 1000 Nos. |
|-----------|---------------|------|------------------|-------|------|-----------|------|----------|-------------|----------------------------|----------|---------------------|
|           | d1            |      |                  | b     |      | s         |      |          |             |                            |          |                     |
|           | Basic         | Tol+ |                  | Basic | Tol+ | Basic     | Tol+ |          |             |                            |          |                     |
| 2.0       | 2.1           | 0.3  | 4.4              | 0.9   | 0.10 | 0.5       | 0.10 | 0.1      | -           | M2                         | 014      | 0.037               |
| 2.2       | 2.3           | 0.3  | 4.8              | 1.0   | 0.10 | 0.6       | 0.10 | 0.1      | -           | M2.2                       | 022      | 0.054               |
| 2.5       | 2.6           | 0.3  | 5.1              | 1.0   | 0.10 | 0.6       | 0.10 | 0.1      | -           | M2.5                       | 030      | 0.059               |
| 3.0       | 3.1           | 0.3  | 6.2              | 1.3   | 0.10 | 0.8       | 0.10 | 0.2      | 0.15        | M3                         | 049      | 0.123               |
| 4.0       | 4.1           | 0.3  | 7.6              | 1.5   | 0.10 | 0.9       | 0.10 | 0.2      | 0.15        | M4                         | 057      | 0.200               |
| 5.0       | 5.1           | 0.3  | 9.2              | 1.8   | 0.10 | 1.2       | 0.10 | 0.2      | 0.15        | M5                         | 065      | 0.391               |
| 6.0       | 6.1           | 0.4  | 11.8             | 2.5   | 0.15 | 1.6       | 0.10 | 0.3      | 0.20        | M6                         | 073      | 0.905               |
| 8.0       | 8.1           | 0.4  | 14.8             | 3.0   | 0.20 | 2.0       | 0.10 | 0.5      | 0.30        | M8                         | 081      | 1.734               |
| 10.0      | 10.2          | 0.5  | 18.1             | 3.5   | 0.20 | 2.2       | 0.15 | 0.5      | 0.30        | M10                        | 090      | 2.748               |
| 12.0      | 12.2          | 0.5  | 21.1             | 4.0   | 0.20 | 2.5       | 0.15 | 1.0      | 0.40        | M12                        | 103      | 4.197               |
| 16.0      | 16.2          | 0.8  | 27.4             | 5.0   | 0.20 | 3.5       | 0.2  | 1.0      | 0.40        | M16                        | 111      | 9.676               |
| 20.0      | 20.2          | 1.0  | 33.6             | 6.0   | 0.25 | 4.0       | 0.2  | 1.0      | 0.40        | M20                        | 120      | 16.407              |
| 24.0      | 24.5          | 1.0  | 40.0             | 7.0   | 0.25 | 5.0       | 0.2  | 1.6      | 0.50        | M24                        | 138      | 28.588              |
| 30.0      | 30.5          | 1.2  | 48.2             | 8.0   | 0.25 | 6.0       | 0.2  | 1.6      | 0.80        | M30                        | 146      | 47.893              |
| 36.0      | 36.5          | 1.2  | 58.2             | 10.0  | 0.25 | 6.0       | 0.2  | 1.6      | 0.80        | M36                        | 154      | 71.930              |
| 42.0      | 42.5          | 1.2  | 68.2             | 12.0  | 0.25 | 7.0       | 0.25 | 2.0      | 0.80        | M42                        | 162      | 117.591             |
| 48.0      | 49.0          | 1.5  | 75.0             | 14.0  | 0.25 | 8.0       | 0.25 | 2.0      | 0.80        | M48                        | 170      | 181.559             |
| 52.0      | 53.0          | 1.5  | 83.0             | 14.0  | 0.25 | 8.0       | 0.25 | 2.0      | 1.00        | M52                        | 189      | 192.818             |
| 56.0      | 57.0          | 1.5  | 87.0             | 14.0  | 0.25 | 8.0       | 0.25 | 2.0      | 1.00        | M56                        | 197      | 204.078             |
| 60.0      | 61.0          | 1.5  | 91.0             | 14.0  | 0.25 | 8.0       | 0.25 | 2.0      | 1.00        | M60                        | 200      | 215.337             |
| 64.0      | 65.0          | 1.5  | 95.0             | 14.0  | 0.25 | 8.0       | 0.25 | 2.0      | 1.00        | M64                        | 219      | 226.597             |

All dimensions are in millimetres.

\* The bend k shall be made on the last tenth of the washer circumference without any sharp edge